COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

August 28, 2018

Cristina Fernandez
Director, Air Protection Division
US EPA Region 3
1650 Arch Street
Mail Code 3AP00
Philadelphia, PA 19103-2029

SEP 05 2018

Dear Ms. Fernandez;

Attached please find the Allegheny County Health Department (ACHD) staff workforce analysis for Title V and other permitting requirements. This analysis is being submitted to meet the requirement for ACHD to submit a workload assessment within 90 days of EPA's May 29, 2018 final report on ACHD's Title V program evaluation conducted by EPA Region III. In addition, this letter will serve as the implementation strategy, also required by the May 20 report, to acquire the appropriate staffing level identified by the workload assessment.

ACHD contracted the services of VISIMO, a business consultant, to perform a rigorous evaluation of all tasks performed by ACHD'S permitting section and develop a model to evaluate the program's processes based on time allotted to each activity. The analysis has determined that an additional two staff are needed to satisfy the three-year plan previously submitted to your office on June 26, 2018, to eliminate the Title V permit backlog. In addition, this staffing level is expected to significantly improve the minor source backlog. To implement the finding of the attached plan, one Full Time Equivalent (FTE) permanent engineer will be hired, and one FTE temporary engineer will be contracted (this may be two part time individuals). The Department has identified two candidates for the contracted FTE position and will be interviewing these candidates in the near term with an expected hire date no later than December 2018. Recruitment for the permanent engineer will begin in the Fall of 2018 with an expected hire date in early 2019. Additionally, a short-term engineer was contracted on July 25, 2018 to complete needed ozone RACT analyses due to be submitted to the EPA.

Progress continues in shrinking the Title V backlog. The backlog has already dropped from 41% backlog (applications older than 18 months) to 34%, with an additional 2 backlogged permits nearing final. This will bring the backlog to 28%.

KAREN HACKER, MD, MPH, DIRECTOR
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PHAB
Advancing public health performance

The Department Air Permitting staff continue to look at processes and methods to improve the permitting process and the model provided by VISIMO will allow the Department to continuously monitor permitting operations of our staff and to make adjustments in resources, as necessary. This model is expected to improve with use as the underlying assumptions are updated with improved process tracking. Over time, this should improve the rate of both Title V and minor source permit issuance. These include but are not limited to better tracking, improved application forms, and additional templates. A later workforce analysis will be the proof of the results of these initiatives.

Other deliverables, such as the financial review and data management analysis, have begun, and will be submitted within the audit's deadline.

Please contact Jayme Graham, Air Program Manager, jayme.graham@alleghenycounty.us, 412-578-8129, if you have and questions or concerns regarding this analysis and implementation.

Sincerely,

Jayme Graham
Air Quality Program Director
Allegheny County Health Department

2018-08-07

WORKFORCE ANALYSIS PROJECT

PERMITTING DEPARTMENT – AIR QUALITY DIVISION
ALLEGHENY COUNTY HEALTH DEPARTMENT

PRESENTED BY: JAMES JULIUS
MANAGING PARTNER, VISIMO

WORKFORCE ANALYSIS PROJECT

PLAN OVERVIEW

Practice:	Name
VISIMO Practice Lead	James Julius
ACHD Leadership Contact	Ron Sugar
Air Quality Division Contact(s)	Jim Kelly, Jayme Graham, JoAnn Truchen

OBJECTIVE

VISIMO was consulted by Allegheny County Health Department (ACHD) leadership to perform an objective analysis to understand the workforce required to alleviate the open number of permits.

TARGET CONDITION

WHAT IS THE DESIRED OUTCOME?

- Gather a deep understanding of HOW permits are completed and the AMOUNT OF TIME it takes for a permit to be created
- We also want to understand RESOURCE CAPACITY AND ALLOCATION – quite simply do we have enough people to support ongoing operations.

APPROACH

The process included interviews, data structuring, demand analysis, capacity analysis, model development, and review with the leadership team.

The permitting department works on a variety of permitting activities – including installation permits, operating permits, and requests for determination. The focus of this exercise was twofold – understand how long it will take to alleviate the Title V Operating Permit backlog, and understand how long it will take to alleviate the overall operating permit backlog.

PROCESS

INTERVIEWS

Interviews were conducted with the 7 permitting engineers, the department secretary, and the department manager. The interviews revealed how the workload was allocated and prioritized, a necessary input for the model, but it also revealed that there was no existing measure for complexity. Following the engineering interviews, the team was organized to create a framework for assessing complexity of a permit. Complexity was found to have 5 levels – the simplest tasks graded I, and the

most complex graded V. There were only 6 permits graded V and these were ones that were held up by legal or other extensive issues that were unusual compared to other permits.

DATA STRUCTURING

The next step was to develop the data structure of the workforce model. We followed the MECE (mutually exclusive collectively exhaustive) multi-dimensional approach to how the workforce data should be modeled. The breakout was based upon TYPE, COMPLEXITY, and TASK. The permit type was previously defined as installation permit, Title V operating permit, minor source operating permit, synthetic minor operating permit (minor sources treated as major sources), requests for determination, and soil and vapor extraction. A complexity level was assigned to each permit type. The last step was to identify the tasks necessary to complete a permit – these included Application Review, Permit Writing, Technical Support Documentation, Permit Review, Comment / Response, C/R Review, Issuance, and Miscellaneous time.

DEMAND ANALYSIS

Management and staff provided input to determine the amount of time expected to complete each discrete task at the intersection of TYPE and COMPLEXITY. The aggregate of this line-item information was the amount of time that it would take to complete a given permit of TYPE and COMPLEXITY.

Once throughput was assessed, the next step was to understand volume. We assessed historical data over the last 5 years (the lifecycle of a permit) to understand how many permits of each type were completed. This gave us a 12-month rolling estimate by TYPE and COMPLEXITY of the number of permits expected – since we already had the throughput data we also had an estimate of the amount of hours.

The last step needed to assess demand was the baseline demand. We collected information from the permitting department that identified the TYPE and COMPLEXITY of all open permits and assigned a completion percentage to each. This, corresponding with the throughput matrix, informed us of the number of hours anticipated to remain for each permit.

One important point to note – there is an amount of waiting time that's associated with each permit. This waiting time could be with respect to company correspondence, periods of comment and response, or mandatory waiting periods to send documents to regulatory agencies. A key assumption made is that the waiting time does not turn into idle time – this time can then be redirected to other tasks in the department.

CAPACITY ANALYSIS

To understand the other part of the demand and capacity equation, we had to model the true number of hours being worked by the engineering workforce. The model included seven engineers with varying degrees of tenure, and included the department policies on vacation, holidays, and work hours per day. The number of work days were plotted over a 3-year period of time. This information was then calculated to a total number of work hours per year and then further calculated to the average working hours per day by employee. This information was then summed up and multiplied by the total number of working days per month to understand the total number of working hours per month for the permitting department.

MODEL DEVELOPMENT

A model was developed in excel that presented the demand and capacity information gathered. To allow the data to interact we leveraged the interview data regarding allocation and prioritization. We modeled first that ADMINISTRATIVE time is an immediate reduction to the total available capacity to work on permits – this time is any time that is not spent on working on permits and includes meetings, training, etc. The balance of time was then allocated based upon historical averages and expert opinion. This time allocation was then fed into the model and allowed the demand and capacity to interact. Finally, any time that was not fully utilized was modeled to be directed to Title V operating permits, as that was the initial impetus for the workforce model development.

A model summary was developed to more easily interact with the model itself. This summary allows the team to update their demand, capacity, and allocation assumptions directly to make sure that their workforce model is in tune to current business conditions. Key variables to understanding the model are:

- Anticipated number of permits by type each year
- Workload allocation by permit type and administrative time
- Total percentage of team's resources dedicated to working on prior year's activity and allocation of those resources by permit type
- Workload priority order by permit type

UPDATING THE MODEL

The model that was developed is scalable and can be updated and tweaked as the demands of the business change. Future updates can be made in the following areas:

Updated Throughput Assumptions – as the team becomes more and more accustomed to tracking time at the complexity and task level of the various permits they are working on the data will begin to take a different shape. This data can be easily updated on a dedicated tab in the model. As this throughput data is updated the balance of the model will shift.

Updated Baseline Assumptions – as the model is run and re-run the amount of work currently outstanding will vary. This is defined at the project TYPE, COMPLEXITY, and PERCENTAGE OF COMPLETION for each permit. It's important to always be operating off of good baseline information as working down the backlog is a critical element of this model.

Updated Workload Carryover Targets – the model allows for a certain amount of work to be "carried over" from year to year. The purpose of this is to model that some permits will cross yearly boundaries – ones that are open at the end of the year or complex permits that take over one year to issue are two examples of this. The purpose of this section is to define, in hours, the anticipated amount of work that will carry over from year to year – another way to think about this is to say at the beginning of the year what percentage of the team will be focused on prior year's work versus incoming work. Anything within these parameters is considered "current" – anything outside of these parameters is considered "backlog".

Updated Workload Allocation Targets – the team's efforts are divided amongst the categories of permit work plus administrative time that includes activities like meetings, trainings, etc. These figures are represented as percentages of the total team's work capacity. As the needs of the business change the

allocation of work may shift categorically. Changing the figures in this area will allow the model to shift.

Updating FTE Increases – the model is set up over a three-year window of time. You can add contractor or employee resources to the model – contractors are modeled at a higher amount of hours per year due to the nature of contracting those resources.

KEY ASSUMPTION – IDLE TIME

We assume that the administrative time spent is at 10%, but based upon anecdotal feedback it may be higher. Time tracking was recommended to assess this level and make adjustments to the model or staffing allocation over time as necessary.

KEY ASSUMPTION – TECHNOLOGY EFFICIENCY

Currently the team does not have any sort of usable centralized database to maintain operations. As a result there is a potential for improving the efficiency of operations with a successful IT deployment in this area. A separate narrative will be developed that gives a high-level outline and approach in regards to this.

MODEL CAVEATS

This model has several caveats that should be followed in order to observe reliable data.

- TIME ASSUMPTIONS – As part of this model we introduced TASK and COMPLEXITY level detail. Considering these items were just introduced we relied upon assumptions generated by the permitting engineers and management. As time goes on the data around these assumptions can be refined and updated to ensure accurate projections.
- TITLE V, COMPLEXITY V PERMITS – The highest complexity Title V Operating Permits are very challenging to know the amount of time it will take to complete these permits.
- MINOR AND SYNTHETIC MINOR BACKLOG – The model results are targeted to eliminate the Title V backlog and to largely reduce the MINOR and SYNTHETIC MINOR backlog – if the goal is to remove the MIN/SYN backlog altogether then the FTE assumptions should also be updated. Additionally, there are several sources of this type that have not yet renewed their permits as they should have and are now in violation – these sources would usually be modeled in the aforementioned volume assumptions. However if these companies that are all in violation corrected at once it could result in additional permit requests than modeled.

RESULTS AND RECOMMENDATIONS

Given the assumptions in the model (staff #, staff time, time to complete, level of complexity, etc..) the permitting department can virtually eliminate the current backlog for all permit types by increasing their overall headcount by 2 FTEs. The mix of these 2 can be contractors or employees or both, but it is recommended that at least one of these FTEs be a hired employee. The data suggests that by hiring these two individuals and ensuring the workload allocation derived from the model assumptions that the Title V Operating Permit backlog will be completely eliminated within 3 years – that is we expect to always maintain about 1,800 hours of Title V work to have current permits and that will be achieved within 3 years. Growing the department will also allow the significant Minor and Synthetic Minor Operating Permit backlogs significantly decline in that period of time.

Allegheny County Health Department - Air Quality Division
Permitting Department
Workforce Data Model

		Year 1	Year 2	Year 3
Recurring Permit Demand Hours		9,239	9,239	9,239
Total Available Work Hours		14,704	14,881	14,763
Available Work Hours Less Admin Time		13,234	13,393	13,287
Excess / (Deficit)		3,995	4,154	4,048
Title V Baseline	4,064	1,716	0	0
Title V Total		4,673	3,112	1,400

Annual Workload Detail

Type	Number	Hours
Installation Permits	30	2,856
Minor Source Permits	35	1,603
Synthetic Minor Permits	8	1,645
Title V Permits	6	2,957
RFD's	60	174
SVE's	2	4

Backlog Summary and FTE Toggle

	Hours	+FTE's C	+FTE's E	Total FTE
Baseline	14,890			
Year 1	11,163	1	1	9
Year 2	7,464	1	1	9
Year 3	4,115	1	1	9

Workload Allocation

Type	% Allocate	Priority
Administrative Time	10%	10
Installation Permits	35%	20
Minor Source Permits	12%	40
Synthetic Minor Permits	24%	60
Title V Permits	15%	50
RFD's	3%	30
SVE's	1%	70
	100%	

Workload Targets at Year End

Type	Target Hrs	Dist. %
Installation Permits	183	5%
Minor Source Permits	915	25%
Synthetic Minor Permits	732	20%
Title V Permits	1,830	50%
RFD's	0	0%
SVE's	0	0%
	3,659	100%
Percentage of Team	33%	

Backlog Detail

	Baseline	Year 1	Year 2	Year 3
IP	2,320	29	0	0
Min	2,412	2,250	2,068	1,899
Syn	7,924	6,040	4,114	2,216
TVOP	2,235	2,843	1,283	0
RFD	0	0	0	0
SVE	0	0	0	0

1 Subtract Out YE Workload Targets? (1-YES, 0-NO)

RECOMMENDED RESOURCES

Role	Annual Estimated Work Hours
Contractor – Permitting Engineer	1,992
Employee – Permitting Engineer	1,624